Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
30 SEP 1997		**00-00-1997 to 00-00-1997**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Polar Science Support	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **University of Washington,Applied Physics Laboratory,1013 N.E. 40th Street,Seattle,WA,98105**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**2**	

POLAR SCIENCE SUPPORT

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Award No. N00014-97-1-0210

OBJECTIVES

The objective of this project is to assist ONR in implementing its research goals in the Arctic. The primary obligation under this grant is to provide logistical support to the University of Washington, as well as other national and foreign ONR-sponsored investigators.

APPROACH

The objective is met by assuming major responsibilities in the area of planning, coordination, and management of field programs. This includes the procurement of logistical equipment and supplies, contracting for services such as ship and aircraft support, and hiring temporary field personnel. Additionally, the grant maintains a substantial oceanographic and logistics equipment pool for use by ONR-sponsored investigators.

ACCOMPLISHMENTS

In support of the Sea Ice Mechanics Initiative (SIMI), a large field project was carried out in the Beaufort Sea. Using the USCG Icebreaker, Polar Star, a 20-person research camp was established in September 1993, on the pace ice 350 miles northeast of Alaska, and subsequently supported by aircraft from Prudhoe Bay. In mid-December, as planned, the camp was closed for winter, leaving the facilities and autonomous data collection systems in place. The environmental conditions encountered throughout the fall were extraordinary, seriously complicating logistics. A very late freeze-up and an extremely receded ice-edge made it difficult to find suitable ice on which to build a camp. Frequent and heavy snowfall further delayed freeze-up and turned runway construction and upkeep into a difficult and very time-consuming effort. Numerous and extended periods of radio blackout frustrated the coordination between the camp and the shore-base. The plan was to return to camp in March 1994 for more studies of the history and evolution of the same ice region. Upon returning, this plan had to be abandoned when it was discovered that a crack had run through the camp and pushed the heavily snow-laden ice below sea level to the extent that water had flooded the huts, leaving up to one foot of ice on the floors. Fallback plans and preparations for such eventualities had been made. While salvage and a shortened program was completed at the fall camp, a new station closer to Prudhoe Bay was established and a modified program was completed by the end of April.

During SIMI, the successful joint Russian and US TransArctic Acoustic Propagation (TAP) experiment took place between the SIMI spring camp and a camp set up on the ice north

of Spitsbergen Island. This grant arranged for aircraft and facilities support at Longyearbyen which was the shore-base on Spitsbergen Island.

The past year was devoted to the SHEBA field program logistics.

- A ship-based research platform as opposed to an ice camp was evaluated in some detail resulting in a decision to use a ship.
- Available ships were identified and examined both in terms of suitability and cost.
- A likely mission profile for a fall 1997 ship deployed experiment was prepared and together with a logistics questionnaire was posted on the SHEBA website, to aid scientists in preparing proposals in response to the SHEBA Announcement of Opportunity and the reviewers in assessing the logistical impact of the individual proposals.
- ONR subsequently negotiated directly with the Canadian Coast Guard for the needed ship support, and an agreement was reached in April.
- The time since has involved all issues related to final planning, coordination, and preparation, with major activities being to assemble and post pertinent information on the project website, acquire and ship equipment in time to meet final load out at TUK 15 September, and solicit bids and secure air support for crew rotation/re-supply purposes.
- The schedule calls for the SHEBA ship and the escort ship to depart TUK on 19 September and to be at the SHEBA site, to be chosen in the area of 75N and 143W, 1 October.